

RS232 Bridge Firmware

User's Manual

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The information in this manual was compiled with care and to our best knowledge; nevertheless there are probably some errors left in this document. We do not take legal or any other responsibility for the correctness of any information.

We are happy to receive your feedback. If you found an error or think that something should be explained in greater detail, don't hesitate to contact us.

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maintech GmbH
Otto-Hahn-Straße 15
D-97204 Höchberg
Germany

Phone +49 (931) 40 70 6 90
Fax +49 (931) 40 70 6 53
Web <http://www.maintech.de>
EMail docu@maintech.de

0 Definition

The SR-Systems RS232 Bridge allows to embed and dembed an RS232 data stream in an MPEG Transport Stream. The firmware provided by maintech allows the control of other SR-Systems components like NIMs, ASI in/out and the MiniMod.

1 Frontpanel

The RS232 Bridge can be controlled via an optional LCD/keypad unit connected to the frontpanel connector. The frontpanel consists of a LC Display, several LEDs and buttons.

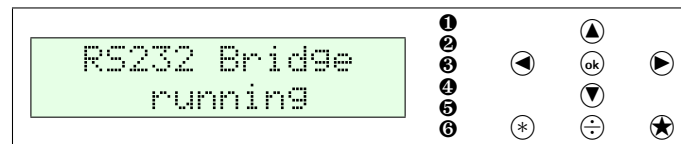


Figure 1: Frontpanel display and button arrangement

- ❶ Power LED
- ❷ not used
- ❸ not used
- ❹ FPGA Status LED
- ❺ not used
- ❻ not used

- ★ Enter and exit the menu, abort data entries
- ok Edit the current menu item and commit the changes
- ▲ ▼ Browse menu categories, change character while editing an item
- ◀ ▶ Browse menu items within a category, move cursor while editing an item
- * Switch display backlight on and off
- ÷ not used

1.1 Status Screen

Under normal conditions, the frontpanel display shows the RS232 Bridge status screen. On this screen, the first line shows the product name. The second line shows the current status code. See the *RS232Bridge Status Codes* in section 5 on page 20 for a list of possible messages and their meaning.



Figure 2: RS232 Bridge status screen without and with error message

1.2 Configuration Menu

Whenever you see the status screen on the frontpanel display, pushing the **★** button enters the configuration menu. The menu items are grouped in various categories. To select a category, use the **▲** and **▼** buttons. The **◀** and **▶** buttons will browse the items within the selected category. Use the **▲** and **▼** buttons again to select a different category. See *RS232 Bridge Menu Structure* in section 3 on page 6 for a list of all available categories and menu items. Press the **Ⓚ** button to edit the menu item currently displayed. Press the **★** button to exit the menu and return to the status screen.

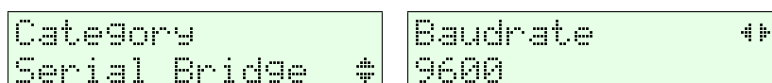


Figure 3: Category and menu item selection

After selecting an item for editing with the **Ⓚ** button, the value can be changed with the **◀** and **▶** buttons. If the item does not represent a distinct set of options but a number or a text string, the **◀** and **▶** buttons move the cursor and **▲** and **▼** change the character under the cursor. Use the **Ⓚ** button to save the changes and press the **★** button to revert the modifications and return to the item selection.

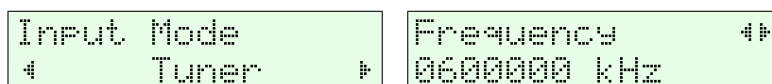


Figure 4: Editing an item with distinct options and a string item

2 Controlling the RS232 Bridge via the RS232 Configuration Port

All configuration options that are available on the frontpanel can also be modified via the RS232 interface on the RS232 Bridge PCB. Please refer to the RS232 Bridge hardware datasheet¹ for the pinout. Do not confuse the RS232 port for data input/output with the RS232 port for configuration.

2.1 Establishing a Connection

The RS232 interface can be used with standard terminal software, e.g. HyperTerminal (included with some versions of the Windows operating system), Putty² or any other VT100 compatible terminal software. Set your PC serial port to 115200 Baud, eight bits per character, no parity, one stopbit (115k2-8N1) and disable any flow control.

When powering up your RS232 Bridge, you should see a boot message similar to this example:

```
RS2232 Bridge Firmware V16.7
(c) 2008-2010 maintech GmbH
```

```
FPGA Bus OK.
FPGA firmware v050 successfully uploaded
```

¹ RS232 Bridge hardware datasheet: <http://www.maintech.de/DSRSB>

² Download Putty at <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

2.2 Changing Settings

After the boot process is complete, the RS232 Bridge displays its main menu, which also can be re-displayed by pressing in the terminal software.

```
RS232 Bridge Mainmenu
```

```
1) show status
2) Input Settings
3) PSI Settings
4) Serial Bridge
> _
```

The contents of the main menu depend on the connected transport stream source and other settings – a tuner will need other settings than the MPEG2 encoder.

A menu option is selected by entering its number followed by pressing .

3 Menu Structure

3.1 Input

3.1.1 Input Mode / Input Mode

This menu item tells the RS232 Bridge, what kind of device is connected to the TS (transport stream) input connector. The TS Input always latches data at the rising clock edge.

Selected Value	Description
Transparent	The RS232 Bridge will take TS data and clock from the TS input port and forward the data (after embedding/deembedding RS232 data) to the TS output port. TS Clock is passed from the TS input to the TS output.
Reverse Trans.	The RS232 Bridge will take TS data from the TS input port and forward the data (after embedding/deembedding RS232 data) to the TS output port. TS Clock is passed from the TS output to the TS input.
Tuner	<p>The RS232 Bridge will configure and control an SR-Systems tuner module (NIM). Supported tuner modules are:</p> <ul style="list-style-type: none"> • DVB-S tuner • STV0297 DVB-C tuner • DiBcom 3000 DVB-T tuner (diversity or single) • NXT6000 DVB-T tuner <p>The RS232 Bridge automatically detects the connected tuner type.</p>

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Selected Value	Description
Encoder	The RS232 Bridge will configure and control an SR-Systems MPEG2 encoder module connected to the TS input port


3.1.2 Output Mode / Output Mode

This menu item allows to change the way the TS output works.

Selected Value	Description
automatic	The TS output clock direction is set automatically according to the <i>Input Mode</i> : <ul style="list-style-type: none"> • Transparent: TS clock at the TS output is driven by the RS232 Bridge and passed from the TS input port. • Reverse Trans.: TS clock is expected at the TS output port and driven to the TS input port. • Tuner: TS clock from the tuner is passed to the TS output port. • Encoder: TS clock for the encoder is generated on TS input port and passed to the TS output port, too.
ext. clock	The TS clock is not driven on TS output – the RS232 bridge expects to receive the TS clock on TS output.
int. clock	The TS clock is driven on TS output and is the same clock signal as on TS input.

3.2 MiniMod Settings

The *MiniMod Settings* submenu is only visible if a MiniMod was detected at the TS output port. All modulation settings of the MiniMod can be controlled from the RS232 Bridge via this menu. Please see *MiniMod Remote Control* in section 6 on page 21 for instructions on how to connect MiniMod and RS232 Bridge. For the configuration of the MiniMod, see the *MiniMod User's Guide*.³

-  You need to have at least firmware Version 16.6 on your RS232 Bridge to make the MiniMod remote control work. Please ask us for a firmware update if necessary.

3.3 PSI Settings

The RS232 Bridge has a built-in PSI table generator which generates ETSI EN 300 468 compliant PSI and SI tables for the connected MPEG encoders or – in extended mode – for an arbitrary number of external services.

³ <http://www.maintech.de/UGMOD>

The configuration for the extended mode is created with the help of our maintech Mux Configurator⁴ and uploaded to the multiplexer via XModem.

3.3.1 PSI Table Generator / PSI Tables

Selected Value	Description
disabled	The table generator in the RS232 Bridge is disabled.
simple	The simple table generator, which generates tables for the encoder directly connected to the RS232 Bridge, is enabled.
extended	The extended table generator, which is configured with the help of the maintech Mux Configurator, is enabled.

3.3.2 Stream ID

Set the transport stream ID that is transmitted in PAT, NIT and SDT for the encoded services.

3.3.3 Network ID

Set the network ID that is transmitted in the NIT for the encoded services.


3.3.4 Repetition

Set the PSI table repetition time in ms. Valid values are between 25 ms and 500 ms. Setting the repetition rate to 250 ms results in the transmission of the complete set of PSI tables 4 times per second.

3.3.5 Network Name

Set the network name that is transmitted in the NIT for the encoded services.

3.3.6 Upload PSI tables

 This menu item is only available if the extended table generator is enabled. It is also only accessible via the serial port.

Select this menu item to upload a binary configuration file generated by the maintech MUX configurator. After selection, you need to upload the file via XModem.

⁴ See <http://www.maintech.de/en/support/information/> for the MuxConfigurator

3.4 Encoder Settings

The *Encoder* submenu is shown if the TS input port is configured to *Encoder* (see 3.1.1).

3.4.1 System Bitrate

Set the encoder's system bit rate (audio, video and tables) to the given value. The modulator does not check if your configured system bitrate fits into the bandwidth provided by the configured modulation settings. The user has to make sure that the system bitrate is at least 3% below the modulation bitrate. Please enter a bitrate value based on 188-byte-packets in kBit/s with possible values between 1000 kBit/s and 20000 kBit/s. If the given value is too low, the encoding process will stop at the first buffer overflow.

3.4.2 Video Input

This selects the used hardware input for the video signal.

Selected Value	Description
disabled	Do not encode a video signal. The stream will be announced as radio service.
CVBS	Encode signal from the encoder's CVBS input.
YC	Encode signal from the encoder's Y/C (S-Video) input.
YCbCr	Encode YCbCr signal from the encoder's external video connector. Pin 10 is Y, pin 12 is Cb, Pin 14 is Cr.
RGB	Encode RGB video signal from the encoder's external video connector. Pin 10 is green, pin 12 is blue, pin 14 is red.
SCART	Encode RGBS (RGB with external sync) video signal from the encoder's external video connector. Pin 8 is sync, pin 10 is green, pin 12 is blue, pin 14 is red.
SDI	Encode signal from the attachable SDI input board.

- ☞ YCbCr, RGB and SCART are only available if a newer encoder board with TVP video decoder-chip is connected. Older encoders with SAA video decoder only support CVBS and Y/C. See the SR-Systems MPEG encoder datasheet for information about the external video connector: http://download.sr-systems.de/Desc/MPEG-Encoder-V4_Desc-en_075dpi.pdf

3.4.3 Video Format

The *Video Format* menu item configures the encoder to the format that is used on the input signal.

- ☞ The Video Format configuration is not available when SDI is selected on an encoder with a new SDI input extension board. The SDI extension board will autodetect the video format in that case.

Selected Value	Description
PAL	Standard PAL television signal
PAL-60	The video signal is interpreted as PAL-60 (PAL with 60 Hz and 525 lines)
PAL-M-60	The video signal is interpreted as PAL-M (PAL with 60 Hz and 525 lines)
PAL-N	The video signal is interpreted as PAL-60 (PAL with 60 Hz and 525 lines)
NTSC	The video signal is interpreted as NTSC
NTSC-4.43	NTSC with color carrier at 4.43 MHz
SECAM	The video signal is interpreted as SECAM

☞ PAL-60, PAL-M, PAL-N and NTSC-4.43 are only available if a newer encoder with TVP video decoder is connected. Older encoders with SAA video decoder only support PAL, NTSC and SECAM.

3.4.4 Video Resolution / Resolution

Selected Value	Description
D1	The video image is encoded with full resolution: 720x576
HD1	The video image is encoded with half resolution: 360x576
CIF	The video image is encoded with quarter resolution: 360x288

3.4.5 Video GOP Mode / GOP Mode


The *GOP Mode* menu item defines how the encoder uses different frame types while encoding the video stream.

Selected Value	Description
I	Each GOP consists only of I-frames
IP	The encoder uses one I-frame and then only P-frames inside a GOP. For a GOP size of ten, the resulting GOP will look like this: IPPPPPPPPP.
IBP	The encoder uses an I-frame at the beginning of the GOP and encodes the rest in B and P frames. For a GOP size of ten, the resulting GOP will look like this: IBPBPBPBPB.
IBBP	The encoder uses an I-frame at the beginning of each GOP and encodes the rest in B and P frames. For a GOP size of ten, the resulting GOP will look like this: IBBPBBPBBP.

3.4.6 Video AGC

The *Video AGC* menu item controls the automatic gain control of the video input.

Selected Value	Description
disabled	The video gain is set manually using the <i>Video Gain</i> setting.
enabled	The automatic gain control of the video input is active.

 The video AGC and video gain settings are not available for older encoders with SAA video ADC. If the input is set to SDI, the video AGC is also not available.

3.4.7 Video Gain

The *Video Gain* menu item controls the video gain if the automatic gain control is disabled. Possible values are from 0 to 300 where 148 is the default value.

3.4.8 Audio Input / Audio

This menu item decides if audio is encoded and transmitted. For video-only mode, set this to *disabled*.

Selected Value	Description
disabled	No audio data is encoded and transmitted.
analog	Audio is encoded from the encoder's analog inputs.
SDI	Audio is extracted and encoded from the attached SDI input port.

3.4.9 Audio Channel

This menu item selects the audio channels for de-embedding from SDI. It is only available when a SDI input module with support for embedded audio is attached to the TS input port.

Possible values are: 1.12, 1.34, 2.12, 2.34, 3.12, 3.34, 4.12 and 4.34.

3.4.10 Audio Volume

The *Audio Volume* menu item lets the user attenuate the received SDI audio signal before encoding. It is only available when a SDI input module with support for embedded audio is attached to the TS input port. Possible values are in the range of 0 dB to -60 dB.

3.4.11 Audio Mode

Configures the audio channel mode for the encoded audio data.

Selected Value	Description
Stereo	The audio from the left and right input is encoded as stereo signal.
Joint Stereo	Stereo encoding with better quality but less stereo channel separation.
Dual Channel	The signal from the left and right input is encoded as two separate mono channels.
Single Channel	The audio is encoded as single mono channel.

3.4.12 Audio Samplerate / Samplerate

Configures the sample rate for analog audio input.

Possible values are: 32 kHz, 44.1 kHz, 48 kHz.

3.4.13 Audio Bitrate / Bitrate

Configures the bitrate that the encoder uses for audio encoding. More bitrate results in better audio quality. Possible values depend on the selected *Audio Mode* (see 3.4.11).

Possible values for **Stereo**, **Joint Stereo** and **Dual Channel**: 64, 96, 112, 128, 160, 192, 224 and 256 kBit/s. CD quality is reached at approx. 224 kBit/s.

Possible values for **Single Channel**: 32, 48, 56, 64, 80, 96, 112, 128, 160 and 192 kBit/s. CD quality is reached at approx. 160 kBit/s.

3.4.14 Program Video PID / Video PID

Set the DVB PID used to transmit the video data. Valid values are between 0x0020 and 0x1FFE. The video PID must be unique – make sure that it is not used for anything else (e.g. audio, PMT, etc.) If you plan to multiplex multiple streams, make sure that the video PID is unique among all other PIDs in the resulting multiplex.

3.4.15 Program Audio PID / Audio PID

Set the DVB PID used to transmit the audio data. Valid values are between 0x0020 and 0x1FFE. The audio PID must be unique – make sure that it is not used for anything else (e.g. video, PMT, etc.) If you plan to multiplex multiple streams, make sure that the audio PID is unique among all other PIDs in the resulting multiplex.

3.4.16 Program PMT PID / PMT PID

Set the DVB PID used to transmit the PMT for the encoded service. Valid values are between 0x0020 and 0x1FFE. The PMT PID must be a unique PID that is not used for video, audio or anything else. If you plan to multiplex multiple streams, make sure that the PMT PID is unique in the whole multiplex.

3.4.17 Program ID

Set the service ID transmitted in the PAT, PMT, NIT and SDT.

3.4.18 Program Provider / Program Prov.

Set the service provider name transmitted in the SDT.

3.4.19 Program Name

Set the service name transmitted in the SDT.


3.4.20 LCN mode

Determines if a Logical Channel Number for this service is sent in the NIT.

Selected Value	Description
disabled	No Logical Channel Number is signalled for the service.
visible	The Logical Channel Number is signalled as visible channel.
hidden	The Logical Channel Number is signalled as hidden command.

3.4.21 LCN number

Set the Logical Channel Number that is sent in the NIT for this channel.

 This menu item is only shown if *LCN mode* is set to *visible* or *hidden*.

3.5 Tuner Settings – Basics

The *Tuner Settings* submenu is available when the TS input is configured to *Tuner* mode (see 3.1.1) and a compatible NIM (network interface module) is attached to the TS input port. The RS232 Bridge will automatically detect the tuner type and display the corresponding settings.

3.5.1 Frequency

All NIM modules need a frequency to tune onto. The frequency is given in kHz and refers to the center of the channel. See the specific sections for DVB-T, -S and -C for the allowed ranges.

3.5.2 PSI Tables

This menu item configures if the PSI Tables (PIDs below 0x20) are forwarded to the TS output port or blocked at the tuner input port.

Selected Value	Description
pass	All PIDs from the tuner will be passed to the TS output port.
block	Only PIDs with values of 0x20 or above are passed to the TS output port. PSI tables which are on the PIDs below 0x20 are blocked.

3.6 Tuner Settings – DVB-T

These menu items are displayed when a DVB-T NIM is attached to the RS232 Bridge.

- ☞ FEC, constellation setting and guard interval are automatically detected from the TPS bits embedded into the carrier. Only frequency and bandwidth need to be set to receive a signal.

3.6.1 Frequency

Set the reception frequency for the DVB-T tuner in kHz. Valid values are between 145000 kHz and 858000 kHz. The DVB-T frequency refers to the center of the channel – independently of the bandwidth.

3.6.2 Bandwidth

Set the reception bandwidth for the DVB-T tuner in MHz. Valid values are between 1 MHz and 8 MHz.

3.7 Tuner Settings – DVB-S

These menu items are displayed when a DVB-S NIM is attached to the RS232 Bridge.

3.7.1 Frequency

Set the reception frequency for the DVB-S tuner in kHz. Valid values are between 950000 kHz and 2150000 kHz.

- ☞ The RS232 Bridge does not account for the LOF of an LNB that you might use. If you use an LNB to receive the DVB-S signal, you need to calculate the IF and set the frequency to that value.

3.7.2 Symbolrate

Set the reception symbol rate for the DVB-S tuner in kSym/s. Valid values are in the range between 1000 kSym/s and 45000 ksym/s.

3.7.3 LNC Power

Selected Value	Description
Off	The DVB-S tuner does not supply power to the HF input.
13V	The DVB-S tuner supplies 13V to the HF input.
18V	The DVB-S tuner supplies 18V to the HF input.

- ☞ The supply of 13 or 18V to the HF input works only if you have connected an additional 24V power supply to your DVB-S tuner. The NIM does not contain a step-up regulator.

3.7.4 LNC 22kHz Tone

Selected Value	Description
Off	The DVB-S tuner does not apply 22kHz to the LNC power supply.
On	The DVB-S tuner applies 22kHz signal tone to the LNC power supply.

- ☞ The 22kHz tone works only if you have connected an additional 24V power supply to your DVB-S tuner and if you have selected 13V or 18V as LNC power.

3.8 Tuner Settings – DVB-C

These menu items are displayed when a DVB-C NIM is attached to the RS232 Bridge.

3.8.1 Frequency

Set the reception frequency for the DVB-C tuner in kHz. Valid values are between 47000 kHz and 866000 kHz.

3.8.2 Symbolrate

Set the reception symbol rate for the DVB-C tuner in kSym/s. Valid values are in the range between 1000 kSym/s and 7000 ksym/s.

3.8.3 Constellation

Set the reception constellation for the DVB-C tuner.

Possible values are: QAM16, QAM32, QAM64, QAM128 and QAM256.

3.9 Serial Bridge Settings

The RS232 Bridge is capable of bridging serial data (from a GPS device, for example) over a DVB stream. This feature consists of two mechanisms: Injection and Extraction.

Injection means the encapsulation of RS232 data, which the RS232 Bridge receives on the serial port, into TS packets and sending those packets on the TS output port.

Extraction means reading TS packets with a specific PID from the TS input port and transmitting their contents to the TS input port.

When combining both mechanisms, you can build a system that transmits serial data along with video and audio services. You could even build a bidirectional serial bridge system.

3.9.1 Baudrate

This setting configures the baud rate that is used for transmitting and receiving on the serial port. Possible values are: 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.

3.9.2 Injection

Selected Value	Description
----------------	-------------

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Selected Value	Description
disabled	Serial Injection is disabled.
enabled	The RS232 Bridge reads data from the serial port and embeds this data into the transport stream using packets with the PID configured under <i>Injection PID</i> . Packets with that PID coming from the input port are not blocked. This means that serial data coming from the input port on this PID gets mixed with the inserted serial data. This might lead to unexpected behaviour.

3.9.3 Extraction

Selected Value	Description
disabled	Serial Extraction is disabled.
enabled	The RS232 Bridge receives TS packets with the PID configured under <i>Extraction PID</i> from the port configured under <i>Extraction Port</i> . The contents of those packets are output on the serial port and the TS packets are also forwarded to the output. A second RS232 Bridge or RS232 extractor could extract the same data or the data could be forwarded to another receiver.

3.9.4 Injection PID

This menu item configures the PID used for RS232 injection, if enabled. Choose a PID that is unique in your system – do not mix audio, video or other PIDs with serial data PIDs.

3.9.5 Extraction PID

This menu item configures the PID used for RS232 extraction, if enabled. Choose the same PID you used as Injection PID on the device where the RS232 gets injected.

3.9.6 Passthrough

This menu item configures if Transport Stream data other than RS232 data is passed through the RS232 bridge.

Selected Value	Description
disabled	No Transport Stream data is passed through the RS232 bridge other than the TS packets generated by the RS232 Insertion.

continued on next page...

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Selected Value	Description
enabled	All Transport Stream data received on the TS Input is passed through the RS232 bridge to the TS Output. Data from RS232 Insertion is multiplexed into the Transport Stream.

4 Verbose Status Report

When controlling the RS232 Bridge via the RS232 serial port as described in section 2, you can get a verbose status report from the RS232 Bridge by choosing option 1 (Show Status) in the main menu.

The meanings of the different lines in the verbose status reports are explained in the sections below.

4.1 Product/Version Information

```
RS232 Bridge CPU V16.7 FPGA 050
```

This line gives you information about the product (RS232 Bridge), the CPU and the FPGA software versions.

- 🔊 This line may be missing for older software versions. In that case, please look at the bootup messages for software version information.

4.2 Global Status

```
Current Status: running
```

This line gives you information about the current global status of the RS232 Bridge. The status message shown here is the same as shown on the frontpanel display. Detailed information on the possible status messages and their meaning can be found in section 5.

4.3 Tuner Status

```
IN: [MB86A15] tuner locked
```

This status line tells you about the status of the TS input port that is set to *tuner* and the status of the connected tuner module (NIM). It is shown only if the TS input port is set to *tuner*. The type of the detected tuner is displayed in square brackets.

Status Display	Description
MB86A15 DVB-S	A Fujitsu MB86A15 DVB-S tuner (SR-Systems DVB-S NIM) has been detected. Tuner settings for DVB-S are shown in the Tuner Settings menu.
STV0297 DVB-C	A ST Microelectronics STV0297 DVB-C tuner (SR-Systems DVB-C NIM) has been detected. Tuner settings for DVB-C are shown in the Tuner Settings menu.
NXT6000 DVB-T	A NextWave NXT6000 DVB-T tuner (SR-Systems DVB-T NIM) has been detected. Tuner settings for DVB-T are shown in the Tuner Settings menu.
DIB3000 DVB-T	A single DibCom DIB3000 DVB-T tuner (SR-Systems DVB-T NIM) has been detected. Tuner settings for DVB-T are shown in the Tuner Settings menu.
2x DIB3000	A DibCom DIB3000 dual diversity DVB-T tuner (SR-Systems DVB-T diversity NIM) has been detected. Tuner settings for DVB-T are shown in the Tuner Settings menu.

Status Display	Description
tuner not found	No tuner module was detected. Check the cable connecting the RS232 Bridge and the tuner module.
tuner error	A tuner module was detected, but a fatal error occurred while controlling the tuner module. The RS232 Bridge continues trying to reinitialize the tuner. Check the cable connections and – if the problem persists – ask for support.
tuner not locked	A tuner module was detected and configured, but it could not lock to a signal. The RS232 Bridge continues trying to retune to the signal. Check frequency and modulation settings in the Tuner Settings Menu.
tuner locked	A tuner module was detected, configured and locked to a signal.

4.4 Encoder Status

IN: encoder running

This status line tells you about the status of the TS input port that is set to *Encoder* and the status of the connected MPEG-2 encoder module. It is shown only if the TS input port is set to *Encoder*.

Status Display	Description
encoder error (BOOT)	The MPEG-2 encoder on the TS Input Port could not be booted. This could happen if there is no encoder connected, if there is a problem with the cable between encoder and RS232 Bridge or if the encoder is defective.
encoder error (...)	The MPEG-2 encoder on the TS input port was started but an error occurred during configuration. The abbreviations in the round brackets indicate what part of configuration failed. Possible values are VID, AUD, BR and PID.

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Status Display	Description
encoder running	The MPEG-2 encoder on the TS input port is running.

4.5 MiniMod Status

MiniMod: ON-AIR

This status line shows the global status of the MiniMod connected to the RS232 Bridge's TS output port. See the MiniMod Firmware Manual⁵ for a list of possible status messages and their descriptions.

4.6 PSI Status

Basic PSI Generator Active

This line shows the status of the RS232 Bridge's built-in table generator.

Status Display	Description
PSI Generator disabled	The RS232 Bridge's PSI Generator was disabled. The RS232 Bridge will not generate any PSI or SI tables.
Basic PSI Generator active	The RS232 Bridge's Basic PSI Generator is active. The RS232 Bridge will generate PAT, SDT, NIT and PMTs for the connected MPEG-2 encoders.
Custom PSI/Filter active	The RS232 Bridge's Extended PSI Generator is active and a custom tableset and/or PID filter was uploaded and is now active.
Custom PSI/Filter incompatible	The custom tableset / PID filter you have uploaded is incompatible with this RS232 Bridge's firmware. Please use the latest version of the maintech Mux Configurator (see http://www.maintech.de/en/support/information/) to generate the .mbn-File and update the RS232 Bridge firmware to the latest version.
Custom PSI/Filter empty	The RS232 Bridge's Extended PSI Generator is active but no custom tableset and/or PID filter was uploaded. Use the maintech Mux Configurator to set up a custom table set and/or PID filter. Export this configuration as a .mbn file and upload this file to the RS232 Bridge.
Custom PSI/Filter error (...)	The RS232 Bridge's Extended PSI Generator is active and an error occurred while executing the custom table set or filter program. Please ask for support.

5 Status Codes

Possible status codes that are reported by the RS232 Bridge on its frontpanel:

⁵ <http://www.maintech.de/UGMOD>

Status Display	Description
booting	The RS232 Bridge firmware is booting and initializing the hardware. This state is reported only for a short time during powerup.
IN: loading...	The RS232 Bridge is uploading firmware to an MPEG encoder connected to a TS input port. This state is reported for a short time during powerup and after changing the TS input mode to <i>MPEG Encoder</i> .
FPGA boot error	Loading the FPGA failed. This status probably indicates a hardware failure. Please ask for support.
IN: encoder erro	The TS input mode of the TS input port is set to encoder, but a MPEG encoder was not detected or an error occurred while starting the encoder. Please make sure that your encoder is connected properly or try a different encoder if you suspect a hardware problem.
IN: tuner error	The TS input mode of the TS input port is set to tuner, but a tuner was not detected or an error occurred while configuring the tuner. Please make sure that your tuner is connected properly or try a different tuner if you suspect a hardware problem.
IN: not locked	The TS input mode is set to tuner, a tuner was detected, but is not locked to a signal. Check if your tuner settings are correct and make sure that the tuner gets a good signal.
running	The RS232 Bridge is working.
<unknown>	The RS232 Bridge is in an unknown state. This indicates a severe hardware or software error. Power-cycle your RS232 Bridge and, if the problem persists, ask for support.

6 MiniMod Remote Control

The RS232 Bridge is capable of controlling a MiniMod connected to the RS232 Bridge's TS output port. This means that you are able to control all MiniMod modulation settings from the RS232 Bridge's RS232 serial port or display/keypad.

To make the MiniMod Remote Control feature work, you need to perform the following steps:

1. Make sure that MiniMod and RS232 Bridge are connected with a Type 1, 1X or 2 cable. We recommend using a Type 2 cable. A Type 3 cable will not work.⁶
2. Make sure that the MiniMod's TS input port is configured to *raw TS*. The settings for clock direction and clock edge do not matter – they will be set to the right values automatically.
3. Make sure that your MiniMod has at least Firmware Version 54.40 and your RS232 Bridge has at least Firmware Version 16.6. Contact us if your hardware has older firmware.

When everything worked well, the menu item *Output Settings* in the RS232 Bridge main menu will be replaced by *MiniMod Settings*. You will also see a MiniMod status line in the RS232 Bridge's verbose status report.

All settings you change in the *MiniMod Settings* menu are stored on the MiniMod immediately. So if you disconnect RS232 Bridge and MiniMod, the MiniMod will remember those settings. If you connect a different MiniMod to the RS232 Bridge, you need to check those settings as the RS232 Bridge will always load them from the MiniMod.

⁶ For information about the different cable types, see the maintech cable guide: <http://www.maintech.de/ANCAB>